Claims

1. Protein or polypeptide having fibrinogen binding activity, **characterized** in that said protein or polypeptide originates from a coagulase-negative staphylococcal strain.

2. Recombinant DNA molecule containing a nucleotide sequence coding for a protein or polypeptide having fibrinogen binding activity, **characterized** in that said protein or polypeptide originates from a coagulase-negative staphylococcal strain.

3. Plasmid, phage or phagemid containing a nucleotide sequence coding for a protein or polypeptide having fibrinogen binding activity, **characterized** in that said protein or polypeptide originates from a coagulase-negative staphylococcal strain.

4. Micro-organism containing at least one recombinant DNA molecule according to claim 2.

5. Micro-organism containing at least one plasmid, phage or phagemid according to claim 3.

6. Method for producing a fibrinogen binding protein or a polypeptide thereof, **characterized** in that

- at least one recombinant DNA molecule according to claim 2 is introduced in a micro-organism,
- said micro-organism is cultured in a suitable medium,
- the protein thus formed is isolated by chromatographic purification.

7. Method for producing a fibrinogen binding protein or polypeptide thereof, **characterized** in that

- at least one recombinant protein according to claim 2 is expressed on a phage particle,
- said phage particle shows fibrinogen binding activity.

8. Recombinant DNA molecule according to claim 2, characterized in that said DNA molecule contains one or more of the following nucleotide sequences:

```
   1     TCTAGTGATGAAGAAAAGAATGATGTGATCAATAATAATCAGTCAATAAA
  51     CACCGACGATAATAACCAAATAATTAAAAAAGAAGAAACGAATAACTACG
 101     ATGGCATAGAAAAACGCTCAGAAGATAGAACAGAGTCAACAACAAATGTA
 151     GATGAAAACGAAGCAACATTTTTACAAAAGACCCCTCAAGATAATACTCA
 201     TCTTACAGAAGAAGAGGTAAAAGAATCCTCATCAGTCGAATCCTCAAATT
 251     CATCAATTGATACTGCCCAACAACCATCTCACACAACAATAAATAGAGAA
 301     GAATCTGTTCAAACAAGTGATAATGTAGAAGATTCACACGTATCAGATTT
 351     TGCTAACTCTAAAATAAAAGAGAGTAACACTGAATCTGGTAAAGAAGAGA
 401     ATACTATAGAGCAACCTAATAAAGTAAAAGAAGATTCAACAACAAGTCAG
 451     CCGTCTGGCTATACAAATATAGATGAAAAAATTTCAAATCAAGATGAGTT
 501     ATTAAATTTACCAATAAATGAATATGAAAATAAGGCTAGACCATTATCTA
 551     CAACATCTGCCCAACCATCGATTAAACGTGTAACCGTAAATCAATTAGCG
 601     GCGGAACAAGGTTCGAATGTTAACCATTTAATTAAAGTTACTGATCAAAG
 651     TATTACTGAAGGATATGATGATAGTGAAGGTGTTATTAAAGCACATGATG
 701     CTGAAAACTTAATCTATGATGTAACTTTTGAAGTAGATGATAAGGTGAAA
 751     TCTGGTGATACGATGACAGTGGATATAGATAAGAATACAGTTCCATCAGA
 801     TTTAACCGATAGCTTTACAATACCAAAAATAAAAGATAATTCTGGAGAAA
 851     TCATCGCTACAGGTACTTATGATAACAAAAATAAACAAATCACCTATACT
 901     TTTACAGATTATGTAGATAAGTATGAAAATATTAAAGCACACCTTAAATT
 951     AACGTCATACATTGATAAATCAAAGGTTCCAAATAATAATACCAAGTTAG
1001     ATGTAGAATATAAAACGGCCCTTTCATCAGTAAATAAAACAATTACGGTT
1051     GAATATCAAAGACCTAACGAAAATCGGACTGCTAACCTTCAAAGTATGTT
1101     TACAAATATAGATACGAAAAATCATACAGTTGAGCAAACGATTTATATTA
1151     ACCCTCTTCGTTATTCAGCCAAGGAAACAAATGTAAATATTTCAGGGAAT
1201     GGTGATGAAGGTTCAACAATTATAGACGATAGCACAATAATTAAAGTTTA
1251     TAAGGTTGGAGATAATCAAAATTTACCAGATAGTAACAGAATTTATGATT
1301     ACAGTGAATATGAAGATGTCACAAATGATGATTATGCCCAATTAGGAAAT
1351     AATAATGATGTGAATATTAATTTTGGTAATATAGATTCACCATATATTAT
1401     TAAAGTTATTAGTAAATATGACCCTAATAAGGATGATTACACGACTATAC
1451     AGCAAACTGTGACAATGCAGACGACTATAAATGAGTATACTGGTGAGTTT
1501     AGAACAGCATCCTATGATAATACAATTGCTTTCTCTACAAGTTCAGGTCA
1551     AGGACAAGGTGACTTGCCTCCTGAAAAAACTTATAAAATCGGAGATTACG
1601     TATGGGAAGATGTAGATAAAGATGGTATTCAAAATACAAATGATAATGAA
1651     AAACCGCTTAGTAATGTATTGGTAACTTTGACGTATCCTGATGGAACTTC
1701     AAAATCAGTCAGAACAGATGAAGATGGGAAATATCAATTTGATG
```

or homologues thereof.

9. Recombinant DNA molecule according to claim 2, **characterized** in that said DNA molecule encodes one or more of the following amino acid sequences:

```
  1   SSDEEKNDVINNNQSINTDDNNQIIKKEET
 31   NNYDGIEKRSEDRTESTTNVDENEATFLQK
 61   TPQDNTHLTEEEVKESSSVESSNSSIDTAQ
 91   QPSHTTINREESVQTSDNVEDSHVSDFANS
121   KIKESNTESGKEENTIEQPNKVKEDSTTSQ
151   PSGYTNIDEKISNQDELLNLPINEYENKAR
181   PLSTTSAQPSIKRVTVNQLAAEQGSNVNHL
211   IKVTDQSITEGYDDSEGVIKAHDAENLIYD
241   VTFEVDDKVKSGDTMTVDIDKNTVPSDLTD
271   SFTIPKIKDNSGEIIATGTYDNKNKQITYT
301   FTDYVDKYENIKAHLKLTSYIDKSKVPNNN
331   TKLDVEYKTALSSVNKTITVEYQRPNENRT
361   ANLQSMFTNIDTKNHTVEQTIYINPLRYSA
391   KETNVNISGNGDEGSTIIDDSTIIKVYKVG
421   DNQNLPDSNRIYDYSEYEDVTNDDYAQLGN
451   NNDVNINFGNIDSPYIIKVISKYDPNKDDY
481   TTIQQTVTMQTTINEYTGEFRTASYDNTIA
511   FSTSSGQGQGDLPPEKTYKIGDYVWEDVDK
541   DGIQNTNDNEKPLSNVLVTLTYPDGTSKSV
571   RTDEDGKYQFD
```

10. Plasmid, phage or phagemid containing one or more nucleotide sequences according to claim 8 or homologues thereof.

11. Micro-organism containing at least one plasmid, phage or phagemid according to claim 9.

12. The use of an extractable fraction of staphylococci to block the adherence of staphylococci to surfaces with immobilised fibrinogen.

13. The use of the native fibrinogen binding protein or parts thereof from staphylococci to block the adherence of staphylococci to surfaces with immobilised fibrinogen.

14. The use of a protein according to claim 1 or parts thereof to block the adherence of staphylococci to surfaces.

15. The use of an immobilised protein according to claim 1 or fragments thereof to isolate or detect fibrinogen in solutions.

16. The use of a gene encoding a protein according to claim 1 or parts thereof for diagnostic purposes, e.g. to detect the presence of *S. epidermidis* and/or determine the type of organism present in a sample.

17. Antibodies raised against a protein according to claim 1 or against a peptide, encoded

by the DNA sequence according to claim 8.

18. The use of antibodies according to claim 17 for diagnostic purposes.

19. The use of antibodies according to claim 17 for therapeutic and prophylactic purposes.

20. The use of antibodies against the extractable fraction of staphylococci to block the adherence of staphylococci.

21. The use of antibodies against the native fibrinogen binding protein from staphylococci to block the adherence of staphylococci.

22. The use of antibodies against a protein according to claim 1 or parts thereof to block the adherence of staphylococci.

23. The use of a fibrinogen binding protein or parts thereof from staphylococci as an immunogen.

24. The use of a protein according to claim 1 or parts thereof as an immunogen.

25. Vaccine composition including a protein according to claim 1.

26. Vaccine composition including a DNA sequence according to claim 8.

27. Method of active immunisation including the administration of a protein according to claim 1 to a mammal.

28. Method of active immunisation including the administration of a DNA sequence according to claim 8, to a mammal.

29. Method of passive immunisation including the administration of antibodies, raised against a protein according to claim 1 or against a peptide, encoded by a DNA sequence according to claim 8, to a mammal.

THIS PAGE WAS NOT FURNISHED UPON FILING
THE INTERNATIONAL APPLICATION

THIS PAGE WAS NOT FURNISHED UPON FILING
THE INTERNATIONAL APPLICATION

by the DNA sequence according to claim 8.

18. The use of antibodies according to claim 17 for diagnostic purposes.

19. The use of antibodies according to claim 17 for therapeutic and prophylactic purposes.

20. The use of antibodies against the extractable fraction of staphylococci to block the adherence of staphylococci.

21. The use of antibodies against the native fibrinogen binding protein from staphylococci to block the adherence of staphylococci.

22. The use of antibodies against a protein according to claim 1 or parts thereof to block the adherence of staphylococci.

23. The use of a fibrinogen binding protein or parts thereof from staphylococci as an immunogen.

24. The use of a protein according to claim 1 or parts thereof as an immunogen.

25. Vaccine composition including a protein according to claim 1.

26. Vaccine composition including a DNA sequence according to claim 8.

27. Method of active immunisation including the administration of a protein according to claim 1 to a mammal.

28. Method of active immunisation including the administration of a DNA sequence according to claim 8, to a mammal.

29. Method of passive immunisation including the administration of antibodies, raised against a protein according to claim 1 or against a peptide, encoded by a DNA sequence according to claim 8, to a mammal.